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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,320	01/04/2006	Jan Gerrit Kortjes	4662-122	8420
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EXAMINER				
INYARD, APRIL C				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,320

Applicant(s)

KORTES ET AL.

Examiner

APRIL C. INYARD

Art Unit

4152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)
Paper No(s)/Mail Date 01-04-2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The word "diary" appears to be a typographical error for the word dairy, page 9, line 5.

Appropriate correction is required.

Claim Objections

2. **Claims 3-6** are objected to because of the following informalities: The abbreviations "5'-GMP" and "5'-IMP", while replete in the art are not defined by any previous claim.

Appropriate correction is required.

3. **Claims 1 and 8** objected to because the term "fat note" in Claims 1 and 8 is vague. The Examiner interprets "fat note" to mean a generally full, hearty, savory and/or meaty taste or aroma; or in general, anything quality that exhibits qualities known in the art as having the fifth taste, or umami.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 2-6** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, **claims 2-6** recite the broad recitation for ranges, and the claim also recites ranges that are more "preferable" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 1 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Potman (US Patent No. 5,288,509) as evidenced by “Creaminess: A Question of Flavor” (Prepared Foods, July 1992).**

(Claims 1 and 8) Potman teaches a yeast extract comprising free amino acids and at least 8% w/w of 5'-ribonucleotides (Col 4, lines 15-22) for improving the fat note in taste and/or aroma and/or mouthfeel of a food with a reduced amount of fat.

As evidenced by Prepared Foods, “5'-nucleotides are natural derivatives of the genetic material of yeasts. The nucleotides contribute a significant salt-sparing and ‘umami’-like effect to flavor profiles, which also gives them a role as salt- and HVP extenders or replacers in foods. Their flavor modulation compensates for the flavor contributions of fatty ingredients.”

(Claims 9-11) Potman teaches the food according to Claim 8 (see above) wherein the food is a dairy product, a bakery product, or a food derived from a fat or oil- product (Col 4, lines 44-46).

With respect to **Claims 9-11**, the Examiner notes that soups, drinks, bakery products, confectionary products, and margarine as taught by Potman could all be reduced fat foods that are dairy, bakery and fat/oil-derived products as presently claimed.

In so much as Potman teaches addition of the extract to foods that are typically associated with fatty tastes, aromas and umami, these foods could either be full or reduced fat (*Col 4, lines 40-46*).

Therefore, Potman teaches a yeast extract comprising free amino acids and at least 8% w/w of 5'-ribonucleotides for improving the fat note in taste and/or aroma and/or mouthfeel of a food with a reduced amount of fat.

9. Claims 1-5 and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kortes et al. (WO 03/063614 A1).

The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

(Claims 1-5 and 7-8) Kortes teaches a yeast extract comprising free amino acids and at least 8% w/w of 5'-ribonucleotides wherein the yeast extract comprises:

- a. **(Claim 2)** 5'-ribonucleotides in a range of between 10 and 50% w/w, preferably between 10 and 40% w/w, more preferably between 10 and 30% w/w.
- b. **(Claim 3)** 5'-GMP and optionally 5'-IMP in a total amount of at least 4% w/w, preferably between 5 and 25% w/w, more preferably between 5 and 20% w/w, most preferably between 5 and 15% w/w.

- c. **(Claim 4)** the degree of protein hydrolysis in the yeast extract is at most 50%, preferably between 5 and 45%, more preferably between 10 and 45%, even more preferably between 20 and 45%, and most preferably between 30 and 45%.
- d. **(Claim 5)** the ratio between the percentage (w/w) of free amino acids and the percentage (w/w) of the total amount of 5'-GMP and 5'-IMP in the yeast extract is at most 3.5, preferably at most 3, more preferably at most 2.5 and most preferably at most 2
- e. **(Claim 7)** the yeast extract comprises an amount of sodium chloride of at most 8% w/w based on yeast extract dry matter
- f. **(Claim 8)** Food with a reduced amount of fat with an improved fat note in the taste and/or in the aroma and/or in the mouthfeel obtainable by adding to a food with a reduced amount of fat a yeast extract comprising free amino acids and at least 8% w/w of 5'-ribonucleotides.

With respect to Claims 1-5 and 7-8 above, Kortess ('614) teaches a method for using a yeast extract as presently claimed ('614, *Abstract, Claims 1-7*) to improve the taste and/or aroma of a beverage. However, Kortess teaches the food with a reduced amount of fat of Claims 1 and 8 because "...they are capable of enhancing the savoury and delicious taste...described as 'mouthfeel' or umami...the natural 5'-ribonucleotides of these yeast extracts demonstrate a synergistic effect with glutamate present in the extract as well as in the food substrates to provide the enhanced savoury attributes to processed food" ('614, *page 1, lines 25-27*). Therefore, Kortess teaches a method for using the yeast extract as claimed in Claims 1-5 and 7-8 in a food with a reduced amount of fat to improve the fat note qualities of the food product.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. **Claims 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potman (US Patent No. 5,288,509).**

Potman teaches the method of Claim 1 (see above), wherein the yeast extract comprises:

- g. **(Claim 3)** 5'-GMP and optionally 5'-IMP in a total amount of at least 4% w/w, preferably between 5 and 25% w/w, more preferably between 5 and 20% w/w, most preferably between 5 and 15% w/w (*Col 4, 0.1-15% 5'-GMP, lines 19-22*)
- h. **(Claim 5)** the ratio between the percentage (w/w) of free amino acids and the percentage (w/w) of the total amount of 5'-GMP and 5'-IMP in the yeast extract is at most 3.5, preferably at most 3, more preferably at most 2.5 and most preferably at most 2 (*Col 4, 5-80% free amino acids and 0.1-15% 5'-GMP, therefore ratios are within the claimed range, lines 19-22*).
- i. **(Claim 6)** the the ratio between the percentage (w/w) of protein in the yeast extract and the percentage (w/w) of the total amount of 5'-GMP and 5'-IMP in the yeast extract is at most 12, preferably at most 8, more preferably at most 6.5 (*Col 4, 20-84% weight of protein material [4-74% peptides], and 0.1-15% 5'-GMP, therefore ratios are within the claimed range, lines 19-22*).

Potman teaches ranges that are substantially close to those of the instant claims such that one of ordinary skill would have expected compositions that are in such close proportions to those in prior art to be prima facie obvious, and to have the same properties. *Titanium Metals Corp.*, 227 USPQ 773 (CA FC 1985).

14. **Claims 2, 4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potman (US Patent No. 5,288,509) in view of Aoyanagi (JP 2002-101846 A) and Thermal Process Flavorings (Food Flavorings (3rd Edition), Chapter 9, pages 283-325).**

Potman ('509) teaches Claims 1, 3, 5-6 and 8-11 (see above).

Potman does not specifically disclose the specific 5'-ribonucleotide ranges of Claim 2.

However, Aoyanagi ('846) discloses a yeast extract rich in 5'-nucleotides that does not have a "yeasty aroma" but has a concentrated taste associated with 5'-nucleotides ('846, *translation paragraph [0001]*) widely used for food seasoning and flavor ('846, *translation paragraph [0002]*) wherein:

- a. **(Claim 2)** 5'-ribonucleotides in a range of between 10 and 50% w/w, preferably between 10 and 40% w/w, more preferably between 10 and 30% w/w ('846, *Claims 1-2, 5' nucleotide content of 10% or more, translation paragraphs [0005] and [0011], working examples*)

At the time of the invention, having the teachings of Potman and Aoyanagi in front of him or her, it would have been obvious to one of ordinary skill in the art to modify the yeast extract for improving the taste and/or aroma and/or mouthfeel of reduced fat foods as taught by Potman with the specific content range of 5'-ribonucleotides taught by Aoyanagi because it is replete in the art that the degree by which the taste and/or aroma and/or mouthfeel of a food product is influenced by the concentration of 5'-nucleotides in the yeast extract ('846, *5'-nucleotide is known as a taste ingredient, translation paragraph [0002]*).

Furthermore, both Potman and Aoyanagi teach the importance of 5'-nucleotide content in yeast extracts as a savory flavor additive. The Examiner deems that it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a results effective variable such as the 5'-nucleotide content in the yeast extracts through routine experimentation, especially given the teaching in Aoyanagi regarding the desire to produce a 5'-nucleotide-rich

yeast extract for flavoring foods. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Potman ('509) teaches Claims 1, 3, 5-6 and 8-11 (see above).

Potman does not specifically disclose the degree of protein hydrolysis of Claim 4, or the amount of sodium chloride of Claim 7 within the yeast extract of Claim 1.

(Claims 4 and 7) However, Aoyanagi ('846) discloses a yeast extract rich in 5'-nucleotides (see above) that is produced through protein hydrolysis ('846, *aqueous acids, translation paragraph [0005]*) but does not teach either the degree of protein hydrolysis in the yeast extract is at most 50%, preferably between 5 and 45%, more preferably between 10 and 45%, even more preferably between 20 and 45%, and most preferably between 30 and 45% or that the yeast extract comprises an amount of sodium chloride of at most 8% w/w based on yeast extract dry matter .

The reference, *Thermal Process Flavorings*, discloses that Autolyzed Yeast Extracts or Yeast Extracts as specified in the *Food Chemical Codex* have the following properties (*Food Flavorings, Chapter 9.10.3, page 317*):

Functional use in foods: Flavoring agent; flavor enhancer.

Requirements: Calculate all analyses on the dry basis. In a suitable tared container, evaporate liquid and paste samples to dryness on a steam bath, then, as for powdered and granular form, dry to constant weight at 105° C.

Assay (protein): Not less than 42.0% protein.

α-Amino nitrogen/total nitrogen (AN/TN) percent ratio: Not less than 15.0% or more than 55.0%.

Ammonia nitrogen: Not more than 2.0% calculated on a dry, salt-free basis.

Glutamic acid: Not more than 12.0% as $C_5H_9NO_4$ and not more than 28.0% of the total amino acids.

Heavy metals (as Pb): Not more than 10 mg/kg.

Insoluble matter: Not more than 2%.

Lead: Not more than 3 mg/kg.

Mercury: Not more than 3 mg/kg.

Microbial limits:

Aerobic Plate Count: Not more than 50,000 CFU per gram.

Coliforms: Not more than 10 per gram.

Yeast and molds: Not more than 50 CFU per gram.

Salmonella: Negative in 25 g.

Potassium: Not more than 13.0%.

Sodium: Not more than 20.0%.

Therefore, given the yeast extracts taught by Potman in view of Aoyanagi, it would have been obvious to one of ordinary skill in the art to modify the 5'-nucleotide rich yeast extract taught by Potman with the additional percentages of 5'-nucleotide content, degree of protein hydrolysis and sodium chloride content of **Claims 4 and 7** because these ranges are known in the art as properties that specify a yeast extract for flavor enhancement. Additionally, Potman and Aoyanagi teach the claimed invention except for the specific degree of protein hydrolysis and salt content. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the degree of hydrolysis as this controls the content of 5'-nucleotides which both Potman and Aoyanagi teach to be within the claimed ranges, and the sodium chloride content, since it has been held to be within the general skill of a worker in the

art to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice. *In re Leshin*, 125 USPQ 416.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. *Umami Flavor of Meat*. Chapter 9. Flavor of Meat, Meat Products and Seafoods (2nd Edition). Springer - Verlag.

(http://knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=1046&VerticalID=0) teaches the use of yeast extracts rich in 5'-nucleotides in foods

- b. "Nucleotides". Pages 1718-1732. Francis, Frederick J. (1999). Wiley Encyclopedia of Food Science and Technology (2nd Edition) Volumes 1-4. John Wiley & Sons.

(http://knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=681&VerticalID=0) is a reference material that teaches how 5'-nucleotides synergize for the umami taste.

- c. Shizuko Yamaguchi and Kumiko Ninomiya. *Journal of Nutrition*, 130: 921S–926S, 2000. Disclosure that the definition of umami is a flavoring derived from yeast RNA used in Japanese cuisine that relies less on **fat** and more on umami, where 5'-nucleotides synergize with glutamates to produce enhanced flavors as an alternative to fat (hence "fat note") in foods.

d. "Flavours to savour".

(<http://www.bakeryandsnacks.com/layout/set/print/layout/set/print/content/view/print/617>

52) is an article disclosing DSM Food Specialties (the Assignee) new products Maxavor and Maxarome Plus LS and Plus MS, a low and medium sodium natural flavour enhancer, which are the yeast extracts used in the working examples of the present specification and therefore have the properties of 5'-nucleotide content, ratio to protein content, and sodium content as presently claimed.

e. BioSpringer, a division of LeSaffre Group offers Springer2000 a yeast extract line rich in 5'-nucleotides within the claimed content ranges with varying salt contents (<http://www.biospringer.com>)

f. Ajinomoto Eurpoe Sales GMBH offers "Super YE", a yeast extract rich in naturally occurring 5'-nucleotides.

g. Tanekawa (US Patent No. 4,303,680) teaches a yeast extract with 5'-nucleotide content.

h. Sakaguchi (US Patent No. 3,104,171) discloses addition of yeast extracts rich in 5'-nucleotides to foods.

i. Ogata (US Patent No. 3,139,385) teaches product of yeast extracts rich in 5'-nucleotides using various strains of yeast.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to APRIL C. INYARD whose telephone number is (571) 270-1245. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571) 272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/APRIL C INYARD/
Examiner, Art Unit 4152

/Joseph S. Del Sole/
Supervisory Patent Examiner, Art Unit 4152